BUSINESS ANALYTICS

We live in a day where we are overwhelmed with data. Today's companies are data-rich and information-poor (DRIP). Business analytics is the transformation of data into insights for better decision making. This transformation is iterative and multi-disciplinary. Business analytics falls at the intersection of technology, statistics, and business.

Students studying business analytics will gain the knowledge and skills necessary to understand and apply quantitative modeling techniques, design cross-functional solutions using standard and advanced business analytics technologies and software, evaluate data mining methods, communicate solutions using data visualizations, develop team and project management skills in a big data context, and effectively communicate analytical findings both orally and in writing.

Undergraduate Major in Business Analytics

For undergraduate curriculum in business, major in Business Analytics.

The Department of Information Systems and Business Analytics offers a major in Business Analytics. Students will complete the general education requirements (including business foundation courses), business core requirements for the Bachelor of Science (B.S.) degree, and 21 additional credits in the major.

The instructional objective of the business analytics major is to prepare students to realize the opportunities presented by data. This includes bringing structure to data, finding compelling patterns in data, communicating the stories buried in data, and advising decision-makers at all levels on the implications for processes and decisions through a data-driven approach.

For more information on the undergraduate major in Business Analytics, please visit: https://ivybusiness.iastate.edu/degree/business-a/. (https://ivybusiness.iastate.edu/degree/business-a/)

Student Learning Outcomes

Upon graduation, undergraduate students majoring in Business Analytics will:

1. Be effective communicators.
2. Be effective collaborators.
3. Be problem solvers.
4. Understand business concepts.
5. Recognize ethical and legal responsibilities to organizations.

Degree Requirements

In addition to the basic business degree requirements (https://catalog.iastate.edu/collegeofbusiness/#curriculuminbusinesstext), Business Analytics majors must also complete:

Required Courses (12 credits):

DS 2010	Introduction to Data Science	3
MIS 3200	Database Management Systems *	3
or ACCT 3840	Accounting Information Systems and Analytics	
MIS 4360	Introduction to Business Analytics #	3
MIS 4460	Advanced Business Analytics #	3

Elective Courses (9 credits):

Select three courses from the following list:		
ACCT 4840	Advanced Accounting Information Systems	3
FIN 4260X	Quantitative Investment Analysis	3
FIN 4500	Analytical Methods in Finance	3
MGMT 4730	Evidence-Based Decision Making in Human Resource Management	3
MIS 3070	Intermediate Business Programming	3
MIS 3150	Business Data Streams and Issues	3
MIS 3680	Marketing Analytics	3
MIS 4100X	Blockchain and Cryptocurrency	3
MKT 3610	Social Media Marketing Strategy	3
MKT 3670	Consultative Problem Solving	3
MKT 4450	Customer Relationship Management	3
SCM 4300	Supply Chain Analytics	3
SCM 4600	Decision Tools for Logistics and Operations Management	3

* If both MIS 3200 and ACCT 3840 are taken, one will count for 3 elective credits in the major.

\# STAT 3260 is a prerequisite for these courses.

NOTE: Business Analytics majors must take STAT 3260 Introduction to Business Statistics II as part of the supporting courses.

The X designation after a course number indicates this is an experimental course offered by the Department. Although in an experimental phase, these courses are open for registration just the same as permanent courses listed in the course catalog and count as elective choices in the major.

Students are limited to three business majors/degrees/minors within the Ivy College of Business. This limit is on business majors/degrees/minors only and does not apply to multiple majors/degrees/minors taken outside the Ivy College of Business.

Business Analytics, B.S.

Sample 4-Year Plan (Your plan may differ)

Freshman

Fall	Credits	Spring	Credits
BUSAD 1020 or 1030	1	ECON 1020	3
ECON 1010	3	STAT 2260	3
COMS 1130	3	PHIL 2300	3
ENGL 1500	3	ACCT 2840	3
MATH 1500	3	Global/International Perspective[@]	3
LIB 1600	1	BUSAD 2030	1
	14		**16**

Sophomore

Fall	Credits	Spring	Credits
ACCT 2850	3	MIS 3010	3
ACCT 3010 (1 cr if taking ACCT 3840)		STAT 3260	3
DS 2010	3	SPCM 3120	3
MATH 1510	3	Natural Science	3
ENGL 2500	3	Business Core Course	3
HUM SOC/SCI	3		
	15		**15**

Junior

Fall	Credits	Spring	Credits
MIS 3200 or ACCT 3840	3	MIS 4360	3
Business Core Courses	6	Business Core Courses	6
ACCT 2150	3	Global/International Perspective[@]	3
US Diversity[#]	3	ENGL 3020	3
General Electives (only 1 cr if ACCT 3010 taken)	2		
	17		**15**

Senior

Fall	Credits	Spring	Credits
MIS 4460	3	Business Analytics Elective	3
Business Core Course	3	MGMT 4780[*]	3
Business Analytics Electives	6	General Electives	9
HUM/SOC SCI	3		
	15		**15**

Total Credits: 122

@ Courses in these requirements may also be used as Global Perspective.

US Diversity courses may be used to satisfy HUM/SOC SCI.

* Must have credit or enrollment in all core courses listed above, except for MGMT 3720, plus senior standing, in order to enroll in MGMT 4780.

Graduation Requirements:

1. Grade of "C" or higher in at least 30 credits of Core and Major courses.

2. 42 credits of 3000+ level courses from a four-year institution.

3. 50% of required Business courses must be earned at ISU.

4. At least 32 credits and the LAST 32 credits must be earned at ISU (exceptions for study abroad and internship may be requested).

5. 122 Credits minimum and a Cumulative GPA of at least 2.00 with no quality point deficiencies.

6. A grade of C or better in ENGL 2500 required, and also in one other required ENGL course.

7. All 3000-level and higher business credits must be earned at a four-year college.

8. Multiple business **majors** must have at least 15 distinct credits in each of the major requirements; when applicable, one course can be shared between business majors; see your advisor regarding multiple business **degree requirements**.

Undergraduate Minor in Business Analytics

The Department of Information Systems and Business Analytics also offers a minor for non-Business Analytics majors in the Ivy College of Business. The minor requires 15 credits from an approved list of courses, including at least 6 credits in courses numbered 3000 or above taken at Iowa State University with a grade of C or higher. The minor must include at least nine credits that are not used to satisfy any other department, college, or university requirement. Students with declared majors have priority over students with declared minors in courses with space constraints.

Required Courses (9 credits):

DS 2010	Introduction to Data Science	3
MIS 3200	Database Management Systems [*]	3
or ACCT 3840	Accounting Information Systems and Analytics	
MIS 4360	Introduction to Business Analytics [#]	3

Elective Courses (6 credits):

Choose at least two 3-credit courses from the list below		
ACCT 4840	Advanced Accounting Information Systems	3
FIN 4260X	Quantitative Investment Analysis	3
FIN 4500	Analytical Methods in Finance	3

MGMT 4730	Evidence-Based Decision Making in Human Resource Management	3
MIS 3070	Intermediate Business Programming	3
MIS 3150	Business Data Streams and Issues	3
FIN 4100X	Corporate Financial Planning and Analysis	3
MIS 4460	Advanced Business Analytics #	3
MIS 3680	Marketing Analytics	3
MKT 3610	Social Media Marketing Strategy	3
MKT 3670	Consultative Problem Solving	3
MKT 4450	Customer Relationship Management	3
SCM 4300	Supply Chain Analytics	3
SCM 4600	Decision Tools for Logistics and Operations Management	3

* If both MIS 3200 and ACCT 3840 are taken, one will count for 3 elective credits in the minor.

\# STAT 3260 is a prerequisite for these courses.

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The X designation after a course number indicates this is an experimental course offered by the Department. Although in an experimental phase, these courses are open for registration just the same as permanent courses listed in the course catalog and count as elective choices in the major.

For more information on the undergraduate minor in Business Analytics, please visit: https://ivybusiness.iastate.edu/degree/zminors-and-certificates/. (https://ivybusiness.iastate.edu/degree/zminors-and-certificates/)

Concurrent Degrees

The Department of Information Systems and Business Analytics offers three concurrent degree programs that allow qualified students to be admitted to the following master's programs while completing their undergraduate degree. Students can double count up to 6 credits of coursework between the degrees, allowing them to complete both a bachelor's and a master's degree in as little as five years. The concurrent degree programs offered include:

- B.S. Business Analytics (BUSAN) and Master of Business Analytics (MBAN)
- B.S. Business Analytics (BUSAN) and Master of Science in Information Systems (MSIS)
- B.S. Management Information Systems (MIS) and Master of Business Analytics (MBAN)

For more information on any of the concurrent programs listed above, please visit: https://www.ivybusiness.iastate.edu/master-programs/. (https://www.ivybusiness.iastate.edu/master-programs/)

Graduate Programs

Master of Business Analytics (MBAN)

The Master of Business analytics (MBAN) is an interdisciplinary program that addresses the challenges of dealing with data analytics and business intelligence in the "Big Data" environment. The goal is to develop managers who will master analytics in ways that lead to increased profits for their company. This blended program offers both online and face-to-face education in a comprehensive approach that draws from Business, Computer Science, Electrical and Computer Engineering, Statistics, and Industrial and Manufacturing Systems Engineering. It provides a foundation in data analytics project management, statistical and predictive modeling, consumer sentiment analysis, knowledge discovery, analytical reporting, segmentation analysis and data visualization. The program requires 30 credits of graduate level courses over a 21-month period. Students start the program with a one-week on-campus initiation class. Students then revisit campus once during the middle and once at the end of the program, while taking online classes during the rest of the time.

Student Learning Outcomes

Upon graduation, Master of Business analytics (MBAN) students will:

1. Be analytics modelers.
2. Be problem solvers in analytics.
3. Be evaluators of analytics.
4. Be critical thinkers in analytics.
5. Be collaborators in big data and analytics.
6. Be effective communicators.

For more information about the Master of Business Analytics program, please visit: https://ivybusiness.iastate.edu/degree/mban/. (https://ivybusiness.iastate.edu/degree/mban/)

Master's in healthcare Analytics and Operations (MHAO)

Students graduating from the master's in healthcare Analytics and Operations program will apply data and appropriate models to analyze operations and supply chains to develop and present actionable insights leading to better outcomes in the healthcare industry. Healthcare analytics uses historical and current data to predict trends and optimize operations, bringing benefits to patients, medical professionals, and healthcare supply chain partners.

For more information about the Master of Healthcare Analytics and Operations program, please visit: https://www.ivybusiness.iastate.edu/degree/master-of-healthcare-analytics-and-operations/. (https://www.ivybusiness.iastate.edu/degree/master-of-healthcare-analytics-and-operations/)

Double Graduate Degrees

The Department of Information Systems and Business Analytics participates in two double degree programs at the graduate level. Students can simultaneously pursue a double degree in Master of Business Administration (MBA) and Master of Business Analytics (MBAN) or the Master of Business Administration (MBA) and Master of Healthcare Analytics and Operations (MHAO). The Double Degree plan allows students to share credits between the degrees. See the Director of Graduate Education for more details on sharing credits.

For more information on either double degree offered, please visit: https://www.ivybusiness.iastate.edu/master-programs/. (https://www.ivybusiness.iastate.edu/master-programs/)

Master of Business Administration (MBA)

The Department of Information Systems and Business Analytics participates in the full-time and part-time Master of Business Administration (MBA) program. The MBA is a 48-credit, non-thesis, non-creative component curriculum. Thirty of the 48 credits are core courses and the remaining 18 are graduate electives. Within the MBA program, students may develop an area of specialization in Business Analytics or Healthcare Analytics and Operations.

Student Learning Outcomes

Upon graduation, MBA students will:

1. Demonstrate effective communication skills.
2. Effectively lead and work in diverse teams.
3. Critically solve business problems.
4. Integrate ethical and global perspectives in decision making.

For more information about the MBA program with a specialization in Business Analytics or Healthcare Analytics and Operations, please visit: https://ivybusiness.iastate.edu/degree/mba/. (https://ivybusiness.iastate.edu/degree/mba/)

Graduate Certificates

Business Analytics

The graduate certificate in business analytics will address the challenges of dealing with issues of "big data" and its analysis to extract actionable insights, equips business professionals with the basic analytic concepts and techniques necessary in various areas of business such as marketing, supply chain, operations, forensics, and risk management. Students will have a foundation in data management, business analytics, modeling, and communicating through data visualization.

The certificate is for working professionals as well as students enrolled in graduate programs who are employed or seeking a career as business analysts, analytic systems designers, and data scientists to help improve business performance. The certificate is available online, on campus in Ames and at Capital Square in Des Moines.

For more information about the graduate certificate in business analytics, please visit: https://ivybusiness.iastate.edu/ba-certificate/. (https://ivybusiness.iastate.edu/ba-certificate/)

Digital Marketplace Analytics

A graduate certificate in digital marketplace analytics is jointly offered by the Ivy College of Business and the College of Human Sciences. The 15-credit certificate, which incorporates coursework from both colleges, provides an innovative program for individuals who want to build their data analytics skills and to apply analytics tools to problem-solving in the fashion, events, and hospitality industries.

For more information about the graduate certificate in digital marketplace analytics, please visit: https://ivybusiness.iastate.edu/dma-graduate-certificate/. (https://www.ivybusiness.iastate.edu/dma-graduate-certificate/)